

ELECTRONIC TUBE REFERENCE

# 20FP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

**1 SECTION**  
CONSTRUCTION  
**CATHODERAY**

Twenty-inch direct-view television picture tube with electrostatic focusing, magnetic deflection, and a P4 white phosphor screen. Tung-Sol documentation specifies high-voltage operation to approximately 15 kV.

## GENERAL CHARACTERISTICS

|                     |                   |                      |               |
|---------------------|-------------------|----------------------|---------------|
| BASE DESIGNATION    | —                 | BASE PINS            | 12            |
| NOMINAL HEATER      | 6.3 V / 600 mA    | PARALLEL HEATER      | — / —         |
| HEATING             | Indirect          | SERIES OPERATION     | Not specified |
| CATHODE ARRANGEMENT | Separate cathodes | SECTION CONSTRUCTION | Similar       |

## SECTION RATINGS

|                                                            |         |
|------------------------------------------------------------|---------|
| SECTION1 Cathode Ray                                       |         |
| MAXIMUM PLATE VOLTAGE                                      | 15000 V |
| MAXIMUM SCREEN VOLTAGE                                     | 410 V   |
| CRT section; Electrostatic focus with magnetic deflection. |         |

Direct-view television picture tube with electrostatic focus, magnetic deflection, P4 white phosphor, and published high-voltage CRT operating data.



## SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

# 1961 Tung Sol

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1961 TUNG SOL

## Section 1 · Cathode Ray

| OTHER          |                 |                    |
|----------------|-----------------|--------------------|
| PARAMETER      | PUBLISHED VALUE | CONDITION / NOTE   |
| Heater voltage | 6.3 V           | Nominal            |
| Heater current | 600 mA          | Nominal            |
| Grid 2 voltage | 410 V           | Published CRT data |

| CHARACTERISTIC   |                 |                    |
|------------------|-----------------|--------------------|
| PARAMETER        | PUBLISHED VALUE | CONDITION / NOTE   |
| Deflection angle | 66 deg          | Published CRT data |



## SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

# 1966 Tung Sol Electronic Tubes 4 of 4

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1966 TUNG SOL ELECTRONIC TUBES 4 OF 4

## Section 1 · Cathode Ray

| CONSTRUCTION      |                 |                  |
|-------------------|-----------------|------------------|
| PARAMETER         | PUBLISHED VALUE | CONDITION / NOTE |
| Focusing method   | Electrostatic   | —                |
| Deflecting method | Magnetic        | —                |
| Phosphor          | P4              | White            |

| CHARACTERISTIC                         |                 |                  |
|----------------------------------------|-----------------|------------------|
| PARAMETER                              | PUBLISHED VALUE | CONDITION / NOTE |
| Horizontal deflection angle            | <b>66 deg</b>   | Approximate      |
| Diagonal deflection angle              | <b>70 deg</b>   | Approximate      |
| Persistence                            | <b>Medium</b>   | —                |
| Faceplate light transmission at center | <b>66 %</b>     | Approximate      |

| CAPACITANCE                                 |                 |                  |
|---------------------------------------------|-----------------|------------------|
| PARAMETER                                   | PUBLISHED VALUE | CONDITION / NOTE |
| Cathode to all other electrodes capacitance | <b>5 pF</b>     | Approximate      |
| Grid #1 to all other electrodes capacitance | <b>6 pF</b>     | Approximate      |

| OTHER                                          |                     |                            |
|------------------------------------------------|---------------------|----------------------------|
| PARAMETER                                      | PUBLISHED VALUE     | CONDITION / NOTE           |
| Heater voltage                                 | <b>6.3 V</b>        | —                          |
| Heater current                                 | <b>600 mA</b>       | —                          |
| Maximum DC anode voltage                       | <b>15000 V</b>      | —                          |
| Maximum DC grid #2 voltage                     | <b>410 V</b>        | —                          |
| Maximum grid #1 negative bias magnitude        | <b>125 V</b>        | —                          |
| Maximum grid #1 positive DC bias               | <b>0 V</b>          | —                          |
| Maximum grid #1 positive peak                  | <b>2 V</b>          | —                          |
| Maximum heater-cathode voltage during warm-up  | <b>410 V</b>        | HeaterNegative;Warmup<=15s |
| Maximum heater-cathode voltage after warm-up   | <b>150 V</b>        | HeaterNegative             |
| Maximum heater-cathode voltage heater positive | <b>150 V</b>        | HeaterPositive             |
| Typical DC anode voltage                       | <b>12000 V</b>      | TelevisionPictureTube      |
| Typical DC grid #2 voltage                     | <b>300 V</b>        | TelevisionPictureTube      |
| Typical grid #1 visual-extinction range        | <b>-33 to -77 V</b> | VisualExtinction           |
| Ion trap setting                               | <b>50 mA</b>        | Approximate                |
|                                                |                     |                            |

| PARAMETER                                 | PUBLISHED VALUE | CONDITION / NOTE |
|-------------------------------------------|-----------------|------------------|
| Maximum collector/grid #3/grid #5 voltage | 15000 V         | —                |
| Maximum grid #4 focusing voltage          | 5000 V          | —                |
| Typical collector/grid #3/grid #5 voltage | 12000 V         | —                |
| Typical grid #4 focusing voltage range    | 2500 to 3200 V  | —                |